Highlights

Overview

This issue of the *Natural Gas Monthly* contains estimates through October 1999 for many natural gas data series at the national level. Estimates of natural gas prices are available through June 1999 for most series. This issue also contains two articles. The Special Focus, "Corporate Realignments and Investments in the Interstate Natural Gas Transmission System," examines the financial characteristics of current ownership of the major U.S. interstate natural gas pipeline companies as well as their near-term investment needs. The Special Report, "Natural Gas Winter Outlook 1999-2000," summarizes the natural gas information contained in the article, "1999-2000 Winter Fuels Outlook" in the Energy Information Administration's *Short-Term Energy Outlook*, 4th quarter 1999.

Highlights of the most recent estimates contained in this issue of the *Natural Gas Monthly* are:

- The 1999-00 heating season (November through March) begins with 3,101 billion cubic feet of natural gas in underground storage facilities at the end of October 1999—the second highest level at the beginning of the heating season since 1992.
- Dry natural gas production for January through October 1999 is 197 billion cubic feet (1 percent) lower than in 1998 during the same period, but net imports are 267 billion cubic feet (11 percent) higher than last year.
- End-use consumption of natural gas for January through October 1999 is 123 billion cubic feet (1 percent) higher than in the same period of 1998.
- Cumulative average natural gas wellhead and end-use prices through July 1999 (through June 1999 for electric utilities) are at least 5 percent lower than for the corresponding period in 1998. The largest decline is in the industrial sector, where the cumulative average price of $2.80 per thousand cubic feet is $0.52 or 16 percent below that of 1998.

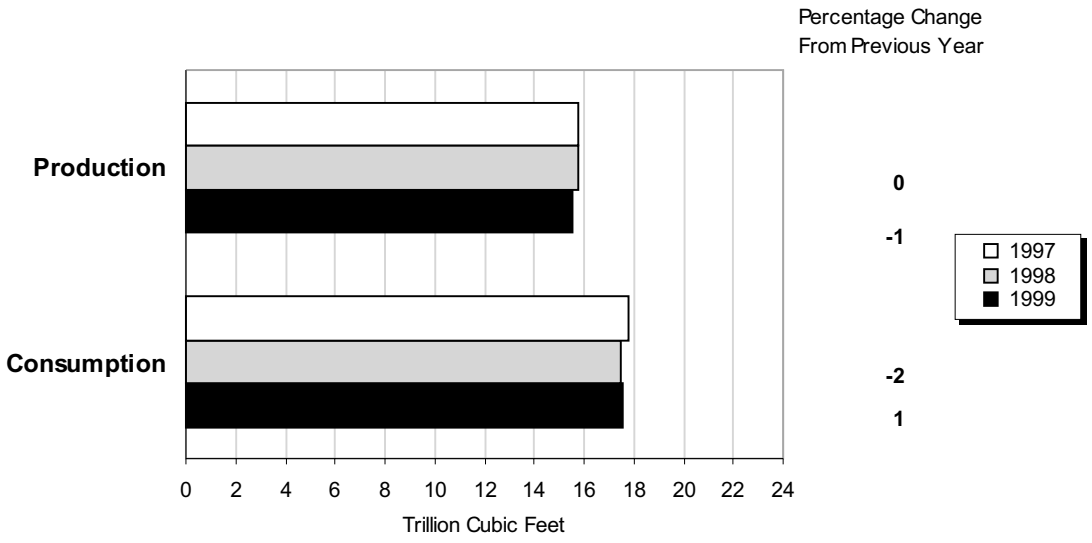
Supply

Cumulative dry natural gas production for the first 10 months of 1999 is 1 percent below that of 1998 during the same period. Net imports have increased during the period, thus supplies have been sufficient to meet the small increase seen in demand for natural gas. Cumulative dry production for January through October 1999 is estimated to be 15,543 billion cubic feet, 197 billion cubic feet (1 percent) lower than in 1998 (Table 1, Figure HI1). Estimated production during October 1999 is 1,585 billion cubic feet, or 51.1 billion cubic feet per day. The daily rate in October 1999 is slightly below that of both September 1999 and October 1998. Monthly production in 1999 has been below that of 1998 in every month except July when the level equaled that of July 1998.

Cumulative net imports of natural gas, which come mostly via pipeline from Canada, are estimated to be 2,755 billion cubic feet through October 1999, 267 billion cubic feet (11 percent) higher than in 1998 during the same period (Table 2). This increase averages 0.88 billion cubic feet per day and was made possible by the addition of nearly 1 billion cubic feet per day of import pipeline capacity that was put into service in late 1998 and early 1999. Net imports during October 1999 are 281 billion cubic feet, or 9.1 billion cubic feet per day. This is slightly below the daily rate of 9.4 billion cubic feet during September 1999. Thus far, net imports each month during 1999 have been from 8 to 14 percent higher than in 1998.

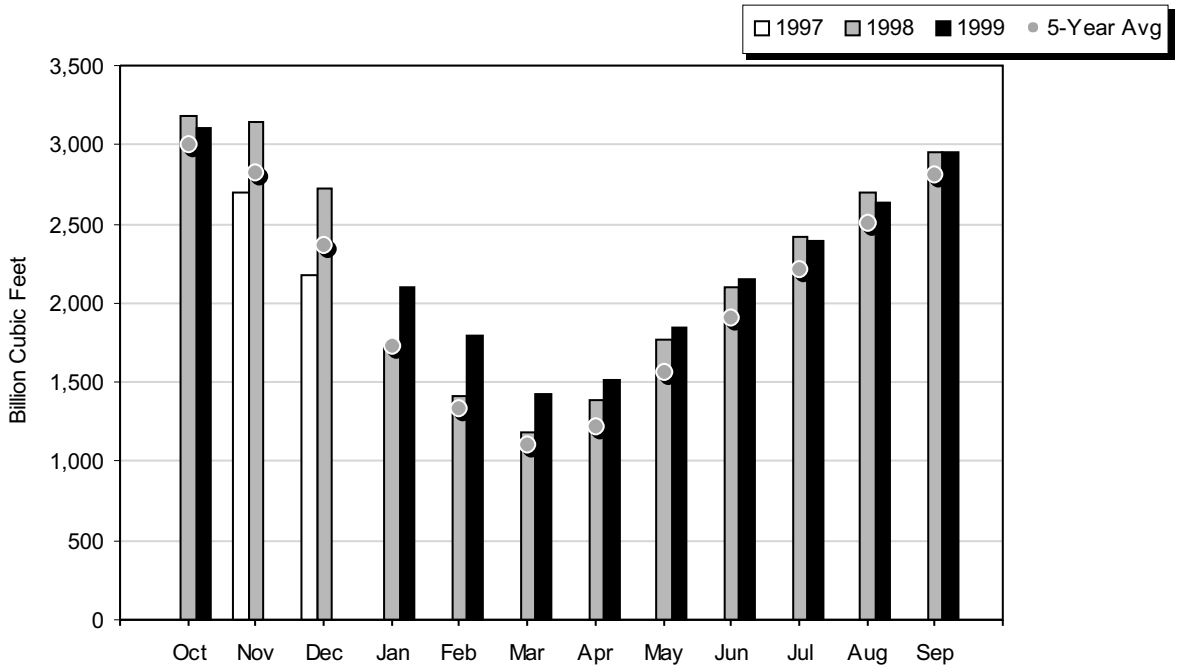
The 1998-99 heating season began with 3,176 billion cubic feet of working gas in underground storage facilities, the highest level at the beginning of the season since 1992. The estimated level of working gas for the end of October 1999 is 3,101 billion cubic feet, 75 billion cubic feet (2 percent) lower than last year but the second-highest level at the end of October since 1992 (Table 10 and Figure HI2). Net injections during

Figure HI1. Natural Gas Production and Consumption, January-October, 1997-1999



Source: Table 2.

Figure HI2. Working Gas in Underground Storage in the United States, 1997-1999



Note: The 4-year average is calculated using the latest available monthly data. For example, the December average is calculated from December storage levels for 1994 to 1998 while the January average is calculated from January levels for 1995 to 1999. Data are reported as of the end of the month, thus October data represent the beginning of the heating season.

Source: Form EIA-191, "Underground Natural Gas Storage Report," Form EIA-176, "Annual Report of Natural and Supplemental Gas Supply and Disposition," and Short-Term Integrated Forecasting System.

October 1999 were 150 billion cubic feet, less than half the level in September 1999, and the lowest level of net injections during October since 1991. A working gas level near 3,000 billion cubic feet is typically thought to be sufficient for the industry to meet the demand for space heating during a normal winter.

End-Use Consumption

Cumulative end-use consumption of natural gas for January through October 1999 is estimated to be nearly 1 percent higher than during the same period of 1998 (Table 3). The increase is largely the result of higher consumption during January and April when the 1999 levels exceeded those of 1998 by 5 and 4 percent, respectively. Monthly end-use consumption from June through September was from 1 to 3 percent lower than in 1998, while consumption in October 1999 of 1,359 billion cubic feet is 2 percent higher than in October 1998.

Monthly residential consumption of natural gas during 1999 has been higher than in 1998 in every month except February and July, when it was 1 and 2 percent lower, respectively. Cumulative residential consumption through October 1999 is estimated to be 3,632 billion cubic feet, 153 billion cubic feet (4 percent) higher than in 1998 for the same period (Figure HI3). Commercial consumption of natural gas shows a similar pattern, with monthly consumption in 1999 being higher than that of 1998 except in 2 months—June and July. The commercial sector used 1 percent less gas during those 2 months in 1999 compared with 1998. Cumulatively through October 1999, commercial users consumed an estimated 2,473 billion cubic feet of natural gas, 77 billion cubic feet (3 percent) higher than during the same period of 1998.

The use of natural gas in the industrial sector is 1 percent lower in 1999 compared with 1998, according to cumulative estimates through October. Cumulative consumption through October 1999 is 7,013 billion cubic feet, more than in any other sector. The level is 76 billion cubic lower than during the same period in 1998. Declines in monthly consumption between 1998 and 1999 have been seen in January through April as well as in July and August. The largest monthly percentage decline was 4 percent, which occurred in both January and July. Industrial consumption during October 1999 is estimated to be 721 billion cubic feet, 1 percent higher than in October 1998.

Estimates of monthly consumption of natural gas by electric utilities are available through July 1999. Cumulatively through July 1999, electric utilities consumed 1,825 billion cubic feet of gas, 17 billion cubic feet (1 percent) more than in 1998. Consumption during 1999 was higher than in 1998 during the first 4 months (35 percent higher in April), but has been lower in May, June, and July. The July 1999 estimate of 436 billion cubic feet is 3 percent lower than in July 1998.

Prices

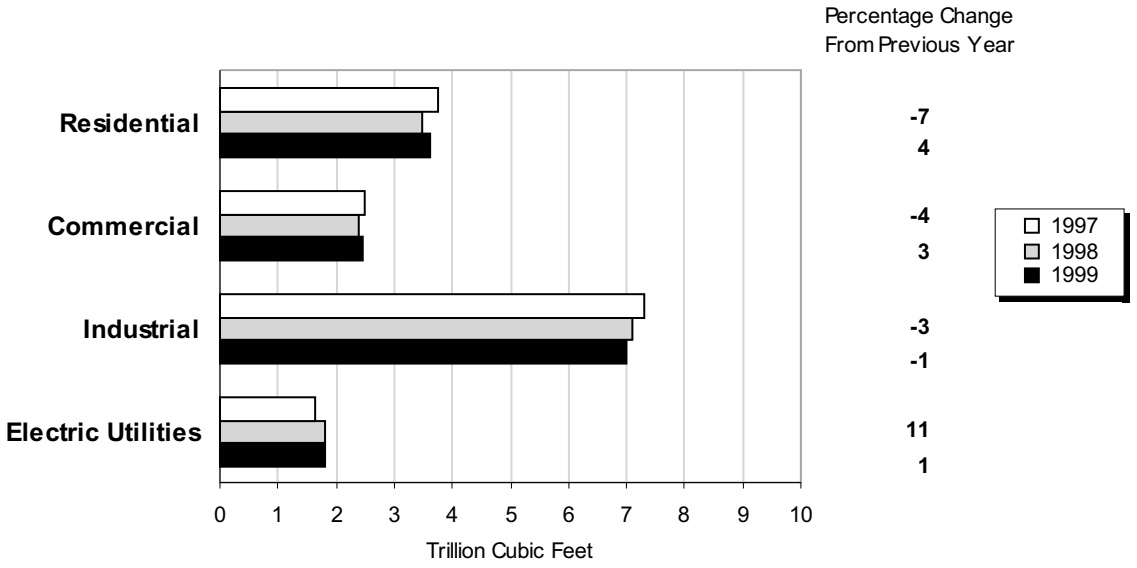
Natural gas prices fell from 1997 to 1998 and the trend has generally continued into the first part of 1999. Monthly estimates of natural gas prices in 1999 are available through July for most price series. Cumulatively through July, natural gas prices are at least 5 percent lower in 1999 than in 1998 during the same period. However, since May 1999, the monthly estimates of the wellhead price and the price paid for natural gas by electric utilities have been equal to or above those of 1998.

The national average wellhead prices for May, June, and July 1999, are $2.10, $2.10, and $2.09 per thousand cubic feet, respectively (Table 4). For May, June, and July 1998, the prices were $2.03, $1.97, and $2.08 per thousand cubic feet, respectively. Wellhead prices during the first part of 1999 were at least 10 percent below those of 1998. Thus, the cumulative average price for January through July 1999, at $1.92 per thousand cubic feet, is $0.13, or 6 percent, lower than in 1998 (Figure HI4). Wellhead prices are expected to increase later in the year according to the Energy Information Administration's *Short-Term Energy Outlook* (*STEO*), averaging $2.28 per thousand cubic feet in the 3rd quarter of 1999 and $2.60 in the 4th quarter.[1] These projections assume normal weather, whereas the past two winters generally have been warmer than normal.

The arrival of autumn temperatures has contributed to the increase seen in natural gas futures market

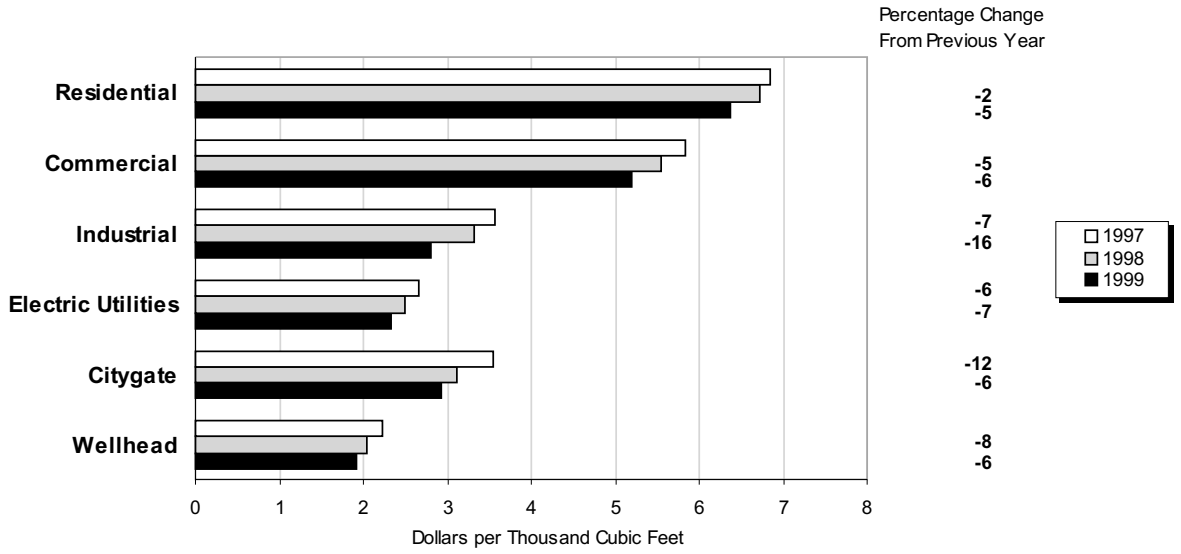
1 Energy Information Administration, *Short-Term Energy Outlook*, 4th Quarter 1999, DOE/EIA-0202(99/4Q) (Washington, DC, October 1999), Table 4, page 55.

Figure HI3. Natural Gas Delivered to Consumers, January-October, 1997-1999



Note: Electric utilities reflect January-July deliveries.
Source: Table 3.

Figure HI4. Average Delivered and Wellhead Natural Gas Prices, January-July, 1997-1997



Note: Commercial and industrial average prices reflect onsystem sales only. The reporting of electric utility prices is 1 month behind the reporting of other prices.
Source: Table 4.

prices at the Henry Hub. The daily futures settlement price on the nearby month contract has generally increased from a recent low of $2.426 per million Btu on September 22, 1999, to $3.072 on October 22, 1999, an increase of 27 percent (Figure HI5). A gap of $0.20 to $0.30 per million Btu developed between the spot and futures prices in late September—the futures price being higher—but as cooler temperatures pushed from the Midwest to the East Coast in mid-October, the Henry Hub spot price caught up to the futures price. The daily average spot price increased 29 percent from $2.35 per million Btu on September 30, 1999, to $3.03 on October 22, 1999.

Cumulative average residential and commercial natural gas prices[2] through July 1999 are each $0.34 per thousand cubic feet lower than in 1998 during the same period. The average residential price is $6.38 per thousand cubic feet and the average commercial price is $5.20 per thousand cubic feet. The price difference in the residential sector is equivalent to a 5-percent drop from 1998, while the commercial price is 6 percent lower than in 1998.

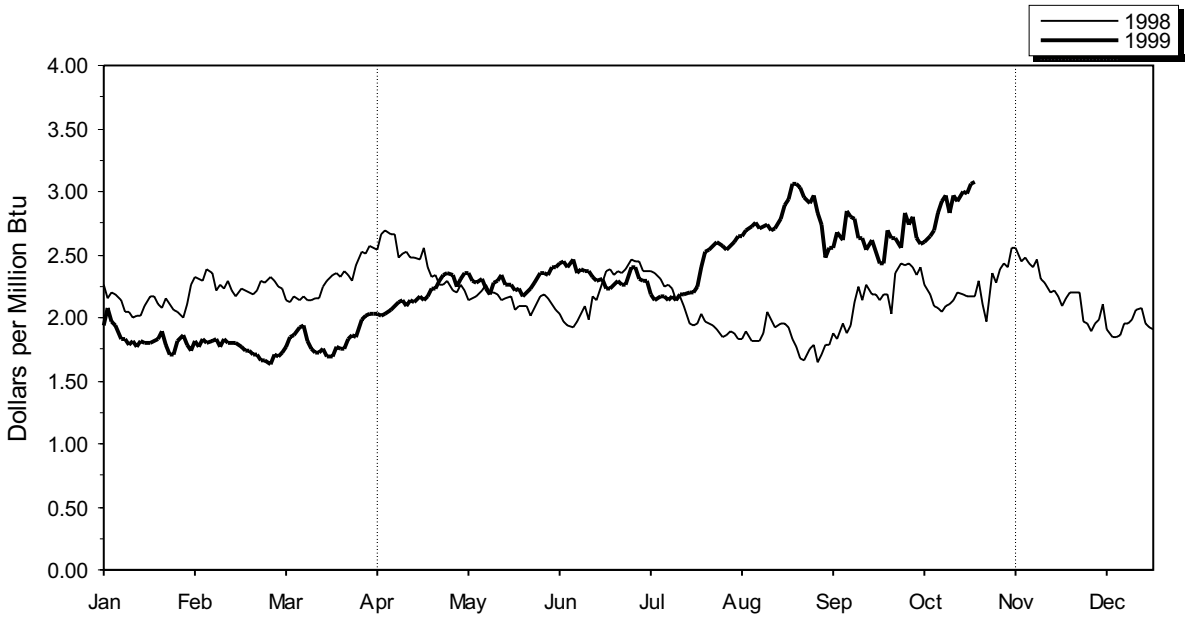
The monthly average price paid for natural gas in the residential sector has increased during the summer, but this is typical behavior for this price series. The estimated residential price has increased from $7.08 per thousand cubic feet in May 1999 to $8.44 in July 1999. The increased average cost during the summer is the result of the type of service residential users require and the strong seasonal pattern of residential consumption. To provide high-quality, on-demand (firm) service to residential users, a demand charge to reserve pipeline transportation capacity is paid. The demand charge is a constant dollar amount throughout the year. Besides the demand charge, the total residential price includes charges for distribution and for the natural gas commodity, both of which may vary throughout the year. The primary use of natural gas in the residential sector is for space heating, thus usage declines during the summer. For example, residential consumption was an estimated 909 billion cubic feet in January 1999, but only 130 billion cubic feet during July 1999. Because the demand charge is a significant portion of the final price and it is a constant each month, when consumption goes down, the average price *per unit of gas consumed* increases. Thus *average* residential natural gas prices always rise during the summer as consumption declines.

Residential expenditures for natural gas during the 1999-00 heating season are expected to be higher than a year earlier because of a return to normal winter weather and higher natural gas wellhead prices. In the Special Report, "Natural Gas Winter Outlook 1999-2000," EIA projects that average household expenditures in the Midwest could increase from $524 in the 1998-99 heating season to $625 in the 1999-00 season, assuming normal winter weather. The percentage increase of 19 percent can be generally expected in other regions as well, even though actual expenditure levels will be different.

Industrial users paid an estimated $2.68 per thousand cubic feet for natural gas in July 1999 and a cumulative average of $2.80 for January through July. The cumulative average price is $0.52 per thousand cubic feet, or 16 percent, lower than in 1998 during the same period. Electric utilities paid an average $2.47 per thousand cubic feet for natural gas in June 1999 and a cumulative average of $2.33 for January through June 1999. The cumulative average price is 7 percent lower than that of 1998, but the price in June 1999 is 3 percent above that of June 1998. The prices paid for natural gas in both the industrial and electric utility sectors tend to respond quickly to changes in wellhead prices.

2 End-use prices in the residential, commercial, and industrial sectors are for onsystem gas sales only. While monthly onsystem sales are nearly 100 percent of residential deliveries, during 1999 they have ranged from 55 to 72 percent of commercial deliveries and only 16 to 19 percent of industrial deliveries (Table 4).

Figure HI5. Daily Futures Settlement Prices at the Henry Hub



Note: The future price is for the nearby month contract, that is, for the next contract to terminate trading. Contracts are traded on the New York Mercantile Exchange. April 1 is the beginning of the natural gas storage refill season. November 1 is the beginning of the heating season.

Source: Commodity Futures Trading Commission, Division of Economic Analysis.